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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,877	11/09/2001	Nathaniel E. Brese	50869	4308
21874	7590	05/26/2004	EXAMINER	
EDWARDS & ANGELL, LLP P.O. BOX 55874 BOSTON, MA 02205			JOHNSON, EDWARD M	
			ART UNIT	PAPER NUMBER
			1754	

DATE MAILED: 05/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/035,877

Applicant(s)

BRESE ET AL.

Examiner

Edward M. Johnson

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1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-22 is/are allowed.
- 6) ☒ Claim(s) 1-3,5 and 6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

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**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 5-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Sullivan US 6,077,619.

Sullivan discloses polycrystalline beta SiC without stacking faults (see column 6, lines 15-26).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pickering et al. US 5,374,412 in view of Sullivan '619.

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Pickering '412 discloses CVD SiC having a thermal conductivity (see Example 1).

Pickering '412 fails to disclose a value of at least 375, 375-390, or 389 W/mK.

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to produce a thermal conductivity of 389 W/mK in the CVD SiC of Pickering because Pickering discloses a value of greater than 300 W/mK desirable for hard discs, read/write heads, and optical apparatus (abstract).

Pickering fails to disclose a crystalline order ratio of less than about 0.10.

Sullivan '619 discloses polycrystalline beta SiC without stacking faults (see column 6, lines 15-26).

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to produce the SiC of Pickering without stacking faults as taught by Sullivan because Sullivan discloses his production without stacking faults to improve device quality (see column 1, lines 50-61).

5. Claim 1-3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tulloch '594 as applied to claim 1 above, and further in view of Sullivan '619.

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Tulloch discloses beta CVD SiC having thermal conductivity of 300-400 W/mK (see column 3, lines 35-45).

Tulloch '594 fails to disclose a crystalline order ratio of less than about 0.10.

Sullivan '619 discloses polycrystalline beta SiC without stacking faults (see column 6, lines 15-26).

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to produce the SiC of Tulloch without stacking faults as taught by Sullivan because Sullivan discloses his production without stacking faults to improve device quality (see column 1, lines 50-61).

Regarding claims 2-3, it is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to produce a thermal conductivity of 375-390 or 389 W/mK in the beta CVD SiC of Tulloch because Tulloch discloses beta CVD SiC having thermal conductivity of 300-400 W/mK (see column 3, lines 35-45) for rapid sensitivity to temperature fluctuations (see column 1, lines 18-22).

***Allowable Subject Matter***

6. Claims 7-22 are allowed.
7. The following is a statement of reasons for the indication of allowable subject matter: It would not have been obvious to

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one of ordinary skill in the art at the time the invention was made to orient the mandrel such that the flow of reactants is parallel to the surface of the mandrel in the methods of the instant claims 7 and 18.

**Response to Arguments**

8. Applicant's arguments filed 3/3/04 have been fully considered but they are not persuasive.

It is argued that enclosed with this Amendment are two X-ray diffraction patterns... the present claims. This is not persuasive because Applicant does not claim a particular X-ray diffraction pattern in the instant claim 5. It is noted that the features upon which applicant relies (i.e., a particular X-ray diffraction pattern) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Applicant claims a crystalline order ratio having -any- value below "about 0.10", which would inherently be met by the disclosed silicon carbide having zero stacking faults, since low crystalline order ratio is an indication of stacking faults (see Sullivan column 6, lines 15-26). Applicant also indicates this in the instant specification at page 7, first full paragraph.

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It is argued that additionally, the peak at 35 degrees... presently claimed invention. This is not persuasive because Applicant's claimed range includes a ratio of zero, which is met by Sullivan's disclosure of zero faults (see above).

It is argued that Pickering et al do not teach... (amended claim 1). This is not persuasive because newly amended claim 1 is newly rejected.

It is argued that claims 2 and 3 depend... claim 1. This is not persuasive because newly amended claim 1 is newly rejected.

#### **Conclusion**

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated

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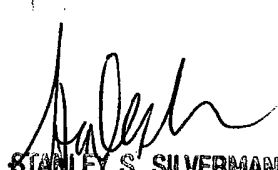
from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward M. Johnson whose telephone number is 571-272-1352. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-0987.

EMJ



STANLEY S. SILVERMAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700